

IN THE CLAIMS

Please amend the claims as follows:

1 (Currently Amended): An image processing system for picking up and displaying an image, the image processing system comprising:

a separating device configured to separate one line of light forming an optical image of an object, wherein the separating device includes a slit that separates the one line of the optical image of the object and an adjusting device that adjusts a position where the optical image of the object is incident upon the slit;

a first dividing means for receiving the separated one line of light and dividing an optical image of an object into the one line of light into a first spectrum;

a detecting means for detecting the first spectrum obtained by the first dividing means and outputting image data based on the detected spectrum;

a second dividing means for dividing white light into a second spectrum;

extracting means for extracting, from the second spectrum generated by the second dividing means, spectrum portions based on the image data detected by the detecting means;

synthesizing means for synthesizing the spectrum portions extracted by the extracting means; and

projecting means for projecting light formed by synthesizing the spectrum portions by the synthesizing means.

2 (Currently Amended): An image processing method of an image processing system for shooting and displaying an image, the method comprising:

separating one line of light forming an optical image of an object, wherein the separating includes separating, with a slit, the one line of the optical image of the object and

adjusting, with an adjusting device, a position where the optical image of the object is incident upon the slit;

performing a first dividing operation, using a first optical image dividing device, for dividing an optical image of an object the separated one line of light into a spectrum;

detecting the spectrum, using a spectrum detecting device, obtained by the first dividing operation and outputting image data based on the detected spectrum;

performing a second dividing operation, using a second optical image dividing device, for dividing white light into a spectrum;

extracting, from the spectrum of the white light divided into the spectrum by the second dividing operation using a spectrum extracting device, spectrum portions based on the image data output by the detecting operation;

synthesizing, using a synthesizing device, the spectrum portions extracted by the extracting operation; and

projecting, using a projection device, light formed by synthesizing the spectrum portions by the synthesizing operation.

3-4 (Canceled).

5 (Previously Presented): The image pickup device according to Claim 6, wherein each photoelectric sensor includes an electron shock CCD.

6 (Currently Amended): An image pickup device for picking up an image, the image pickup device comprising:

a dividing ~~unit~~ device configured to divide an optical image of an object into a spectrum;

a detecting ~~unit~~device configured to detect the spectrum obtained by the dividing device and ~~outputting to output~~ a pixel of image data based on the detected spectrum;

a separating device configured to separate one line of light forming the optical image of the object and ~~supplying to supply~~ the separated one line of light to the dividing device;  
and

a focusing device configured to focus the optical image of the object onto the detecting device,

wherein the detecting device includes a plurality of photoelectric sensors, disposed in a plane, ~~for detecting that detects~~ the strength of the light, ~~each photoelectric sensor detecting~~ and a spectral component of each pixel of the one line of light, and

~~wherein the separating device includes a slit and adjusting device, the slit separating that separates~~ the one line of the optical image of the object, ~~the~~ and an adjusting device ~~adjusting that adjusts~~ a position where the optical image of the object is incident upon the slit.

7 (Currently Amended): The image pickup device according to Claim 6, further comprising a ~~focus device is~~ diffuser disposed just behind the slit ~~for focusing thereon the optical image of the object, wherein the focusing device temporarily focuses the optical image of the object on the focus device.~~

8 (Currently Amended): The image pickup device according to Claim 6, wherein the dividing device includes a prism, and the image pickup device further comprises an optical member ~~causing that causes~~ the light exiting from the slit to be incident upon the prism as parallel light and the spectrum exiting from the prism to exit as converging light to the detecting device.

9 (Previously Presented): The image pickup device according to Claim 6, wherein the adjusting device includes a galvano-mirror or a polygon mirror.

10 (Currently Amended): The image pickup device according to Claim 6, wherein the adjusting device adjusts ~~the~~ an incident position so that ~~the~~ an entire optical image of the object is incident upon the slit every first period, and the detecting device outputs the image data every second period.

11 (Original): The image pickup device according to Claim 10, wherein the first period is a vertical scanning period and the second period is a horizontal scanning period.

12 (Currently Amended): The image pickup device according to Claim 6, further comprising an accumulating device ~~for accumulating~~ that accumulates the image data output by the detecting device.

13-14 (Canceled).

15 (Previously Presented): The image display device according to claim 21, wherein the adjusting device includes a galvano-mirror or a polygon mirror.

16 (Canceled).

17 (Currently Amended): The image display device according to claim 21, wherein the at least one reflector of the extracting ~~device~~ unit includes a micromirror or reflective

liquid crystal.

18 (Currently Amended): The image display device according to claim 21, wherein the at least one transmission unit of the extracting ~~device-unit~~ includes transmissive liquid crystal.

19 (Currently Amended): The image display device according to claim 21, wherein the obtaining device obtains the image data every first period, and the adjusting ~~device-unit~~ adjusts the projection position of the light formed by synthesizing the spectrum portions so that a line is successively displaced from another line every first period and one frame of image based on the image data is projected every second period.

20 (Original): The image display device according to claim 19, wherein the first period is a horizontal scanning period and the second period is a vertical scanning period.

21 (Currently Amended): An image display device for displaying an image, the image display device comprising:

a dividing unit configured to divide white light into a spectrum;

an obtaining unit configured to ~~obtain~~ receive image data based on a spectrum of an optical image of an object;

an extracting unit configured to extract ~~[[by]]~~ pixel spectrum portions based on the image data from the spectrum ~~of the white light divided into the spectrum by~~ output by the dividing unit;

a synthesizing unit configured to synthesize the spectrum portions extracted by the extracting unit and to output synthesized spectrum portions;

a projecting unit configured to project light formed by synthesizing the synthesized spectrum portions output by the synthesizing unit; and

an adjusting unit configured to adjust a position of projection by the projecting unit,

wherein the extracting unit includes at least one reflector or transmission unit, ~~the~~ a number of the at least one reflector or transmission unit being in correspondence with ~~the~~ a number of pixels forming one line in a direction parallel with a line of the optical image of the object and in correspondence with ~~the~~ a number of spectrum portions of the optical image of the object for one pixel in a direction perpendicular to the line, the at least one reflector or transmission unit controlling reflection or transmission of the spectrum of the white light on ~~the~~ a basis of the image data obtained by the obtaining unit, and

[[,]] wherein the dividing unit includes a lamp for emitting the white light, a condensing optical system for condensing the white light from the lamp into ~~the~~ a form of a line, and a spectral prism for dividing the white light into the spectrum, and

wherein the synthesizing unit includes a synthesizing prism for synthesizing the spectrum portions extracted by the extracting unit.

22 (Original): The image display device according to Claim 21, wherein the condensing optical system includes a cylindrical lens or a parabolic sweep mirror.

23 (Original): The image display device according to Claim 21, further comprising a first optical member and a second optical member, the first optical member causing the light incident upon the spectral prism or the synthesizing prism to be parallel light, the second optical member causing the light exiting from the spectral prism or the synthesizing prism to be converging light.

24 (Currently Amended): The image display device according to Claim 21, wherein the extracting unit is the reflector, the spectral prism and the synthesizing prism are formed as one prism, and the image display device further comprises a separating unit for separating to separate light traveling towards the reflector from light traveling away from the reflector.

25 (Previously Presented): The image display device according to Claim 21, wherein at least one of the condensing optical system and the projecting unit is a mirror.

26 (Previously Presented): The image display device according to Claim 25, wherein the condensing optical system is a parabolic sweep mirror and the projecting unit is an elliptical sweep mirror.

27 (Original): The image display device according to Claim 26, wherein a focus of the elliptical sweep mirror is positioned so as to optically correspond with a focus of the parabolic sweep mirror.

28 (Original): The image display device according to Claim 26, wherein the light formed by synthesizing the spectrum portions is projected towards the other focus of the elliptical sweep mirror.

29 (Previously Presented): The image display device according to Claim 25, wherein the condensing optical system is a parabolic sweep mirror and the projecting unit is an elliptical sweep half mirror.

30 (Currently Amended): The image display device according to Claim 21, wherein the dividing unit includes a lamp for emitting the white light, a slit for separating, in the a form of a line, a portion of the white light from the lamp, and a spectral prism for dividing the portion of the white light into the spectrum, and wherein the synthesizing unit includes a synthesizing prism for synthesizing the spectrum portions extracted by the extracting unit.

31 (Previously Presented): The image display device according to Claim 21, further comprising a cylindrical screen for projecting thereon the light formed by synthesizing the spectrum portions.

32 (Canceled).

33 (Currently Amended): An image processing apparatus for picking up and displaying an image, the image processing apparatus comprising:

~~a first dividing means for dividing an optical image of an object into a first spectrum;~~

a separating device configured to separate one line of light forming an optical image of an object, wherein the separating device includes a slit that separates the one line of the optical image of the object and an adjusting device that adjusts a position where the optical image of the object is incident upon the slit;

a first dividing means for receiving the separated one line of light and dividing the one line of light into a first spectrum;

a detecting means for detecting the first spectrum obtained by the first dividing means and outputting image data based on the detected spectrum;

a second dividing means for dividing white light into a second spectrum;



a extracting means for extracting, from the second spectrum generated by the second dividing means, spectrum portions based on the image data detected by the detecting means; and

a synthesizing means for synthesizing the spectrum portions extracted by the extracting means.

34 (Previously Presented): The image processing method according to Claim 2, wherein the synthesizing the spectrum portions extracted by the extracting operation is performed using an image synthesizing processor.